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| 10/063,870      | 05/21/2002  | Chihiro Araki        | SIMTEK6353          | 2472             |

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| EXAMINER |
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TRAN, LEN

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| ART UNIT | PAPER NUMBER |
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1725

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/063,870  
Filing Date: May 21, 2002  
Appellant(s): ARAKI, CHIHIRO

**MAILED  
MAR 19 2007  
GROUP 1700**

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Ernest A. Beutler  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed August 2, 2003 appealing from the Office action  
mailed July 02, 2003.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

5,433,369

OKUMURA

07-1995

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Okumura (US 5,433,369).

Okumura discloses the method and apparatus for wire bonding comprises a device for ultrasonic vibration, applying pressure between the metallic wire and the device and simultaneously applying a vibratory force thereto, detecting degree of bonding, and stopping the application of ultrasonic vibration and pressure in response to the detection of completion of the state of bonding. The device further comprises a semiconductor chip and the metallic wire is welded to a bonding pad. The bonding is determined from an abrupt change of the waveform of the feedback signal (col. 3, lines 11-50).

**(10) Response to Argument**

Applicant's argument on page 3, 2<sup>nd</sup> paragraph, regarding to Okumura fails to teach the step of "detecting the degree of bonding between the metallic wire and the device", examiner respectfully disagrees. Applicant further acknowledged on page 3, 2<sup>nd</sup> paragraph, that Okumura teaches detecting a decrease in power supply due to the contact between the bonding wire and the electrode and indicate this is no way known in the art as related to the degree of bonding. Examiner respectfully disagrees. Okumura discloses in column 3, line 11 through column 4, line 25, a method of controlling the power supply between the bonding wire and the electrode. Okumura discloses in column 3, lines 33-50:

"A feedback-current detection resistance 23 for detecting a feedback current is connected between the ultrasonic vibrator 15 and ground, and a voltage corresponding to a feedback current 25 (hereafter referred to as feedback-current indication voltage) is generated at one end of the resistance 23. The feedback-current indication voltage 26 is inputted to the electric-power calculation circuit 21 of the electric-power control section 19 and the PLL circuit 18. The electric-power calculation circuit 21 calculates electric power from the feedback current 25 obtained from the feedback-current indication voltage 26 and the oscillating voltage 24 output by the oscillator 11 and inputs the calculated electric power to the correction circuit 22. The correction circuit 22 inputs a control voltage 27 for compensating the calculated electric power value to the level setting circuit 12 in correspondence with the calculated electric power value."

The power being supplied is constantly recalculated by the correction circuit (22) in order to maintain a constant power (col. 2, lines 44-49), thus **maintaining a degree of bonding**.

Based on the broadest interpretation of “degree of bonding”, Okumura also teaches a degree of bonding by controlling the power. Therefore, Okumura discloses the claimed invention as claimed.

As to applicant’s argument on page 3, 3<sup>rd</sup> paragraph, regarding to Okumura fail to teach the step of stopping the application of ultrasonic vibration and pressure in response to the detection of completion of the state of bonding, examiner respectfully disagrees. As shown in figure 3’s of Okumura, the bonding is stopped upon completion. In figures 1 and 2, Okumura discloses controlling the power to keep it constant for an effective bond. Once the bond is done, it is inherent to stop vibration and pressure.

As to applicant’s argument on page 3, 4<sup>th</sup> paragraph, regarding to Okumura fails to teach a chip, wire, and bonding pad, examiner respectfully disagrees. In figure 2, Okumura discloses a chip, wire, and pad.

As to applicant’s argument on page 3, 5<sup>th</sup> paragraph, regarding to Okumura fails to teach a semiconductor chip mounted on a substrate, examiner respectfully disagrees. As to the conventional art of wire bonding a substrate, the chip is always mounted on a substrate.

As to applicant’s argument on page 3, 6<sup>th</sup> and 7<sup>th</sup> paragraph, regarding to Okumura fails to teach feedback signal from oscillator, examiner respectfully disagrees. Clearly, Okumura teaches in figure 1, feedback signal from oscillator.

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As to applicant's argument of determining "an abrupt change of the waveform of the feedback signal", Okumura discloses the claimed invention, since Okumura is concerned with ultrasonic waves (col. 4, line 31-32).

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Len Tran

Primary Examiner

AU 1725

Conferees:

Patrick Ryan

Bill Krynski